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ABSTRACT

Computer networks can fall into three broad categories--local area networks (LAN), microcomputer based messaging systems (this includes computer bulletin board systems), or commercial information systems. Many of the same types of activities take place within the three categories. The major differences are the types of information available and the way in which access to the information is provided. This digest is primarily concerned with microcomputer based messaging systems but it distinguishes this type of network from the other two. The digest comprises sections on: what networking is; local area networks; commercial information systems; microcomputer based systems; user requirements; getting started; services available; trouble shooting; and resources. (THC)

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ERIC DIGEST

NETWORKING AND MICROCOMPUTERS

What is Networking?

Networking is a very broad and confusing term. Whether one is talking about computers or not, networking means establishing a link in order to exchange or share resources, ideas, information or support. With the advent of the microcomputer, the possibilities for networking have been greatly extended. Using a microcomputer network you can sell a car, make a date, download software, announce an event, send a message and much more.

Human Networking Computer Networking

Networking implies that one entity is communicating with another. Computerized networks require a somewhat different approach. Instead of direct two-way communication (i.e., conversation between two or more people), networkers communicate with a centralized unit known as the host computer where messages and information are stored and retrieved. The host not only stores the information and messages but it also manages access to them.

Networks can fall into three broad categories—local area networks (LAN), microcomputer based messaging systems (this includes computer bulletin board systems (CBBS)), or commercial information systems. Many of the same types of activities take place within the three categories. The major differences are the types of information available and the ways in which access to the information is provided. This digest is primarily concerned with microcomputer based messaging systems but it is important to distinguish this type of network from the other two.

Local Area Networks

The best example of a local area network is the integrated office. The type of information in this kind of network is specific to the needs and requirements of the organization. Connected by cables and sometimes phone lines, the LAN makes it possible to maximize the utilization of expensive computer hardware and peripherals (disk drives, tape drives and printers). A great deal of the literature concerning networking refers to the LAN (i.e., how to make different pieces of equipment "talk" to each other within the office environment).

Commercial Information Systems

The commercial information utilities are also networks. They include database search services (Dialog, BRS, SDC); library service networks (OCLC-Online Computer Library Center, etc.); information utilities (the Source, Compuserve), and news networks (New York Times, etc.).

They provide a very broad range of information for a diverse audience. For most users, these services are not within local dialing radius. Low cost, long distance access is provided through one of the packet switching networks (sometimes called value added networks) such as Tymnet, Telenet, or Uninet. In order to access one of these systems, it is necessary to set up an account (subscription) so that users can be charged for the amount of time they utilize the service.

Microcomputer Based Systems

A microcomputer based networking system works much like the commercial utilities except that a microcomputer is the host. Most are privately operated and usually provide general information about a specific subject, e.g., education, Apple users, microcomputer club news. Access is through regular telephone lines. Those networks which are not local entail a long distance phone call. For this reason many operate at night when phone rates are lower. Although most microcomputer networks are free except for the phone call, some require the user to become a member and use an identification number and password in order to get into the system.

User Requirements

In order to access a microcomputer network, you must have a terminal that allows you to set the parity and the data length (more about this later). Many people use their microcomputers as terminals, which allows them to store the information they are retrieving to disk or have it printed out. For more information on this see the ERIC Digest "Accessing ERIC with Your Microcomputer." As long as the micro is capable of communicating (i.e., acting like a terminal), it can interact with a network set up on any kind of microcomputer.

Getting Started

The first step is to dial the network's phone number and establish communication with the host computer (see list at the end of the article). There is usually a WELCOME message followed by other introductory information such as a description of the type of in-

IR051021

formation available, what number caller you are, and any special announcements (e.g., changes in the system). The main purpose of networks is to try and reach as many people as possible. Consequently, they are usually very "friendly" and provide HELP instructions (a review and explanation of the commands needed to use the network) that can be accessed while communicating with the network. Users will be asked if their computer can handle upper/lower case and where they are from (for statistical purposes), followed by a review of the necessary commands to utilize the system.

Services Available

More often than not, microcomputer based messaging systems are referred to as computer bulletin board systems or CBBSs. However, many messaging systems are capable of providing more than bulletin board services.

A *computerized bulletin board* is very similar to a bulletin board in a public place where everyone can pin up a notice they want others to see. It can be an announcement for a meeting, item for sale, service available, etc. A computerized bulletin board is basically the same thing. The host microcomputer is essentially the physical bulletin board where information that anyone may want to distribute is stored. Most CBBSs have a scan option that allows users to see a brief description of the messages. After scanning the various messages, they can then go back and choose to see the entire form of a particular message or leave a message on the CBBS they want others to see.

Downloading Software—Some bulletin boards also allow public domain (free to the public) software to be downloaded. By giving a few commands, users can have a program sent (downloaded) to their micros and stored to disk for later use. When downloading software, the computer that is receiving the software must be the same as the computer that is sending the software.

Electronic mail is similar to a bulletin board except that messages are left for a specific individual. In this circumstance, all users have identification numbers. Each message is addressed via the identification number to the appropriate user or users. A microcomputer based messaging system may also include electronic mail service (which requires that all users have an ID and is a more elaborate system). As users sign on and give their ID numbers, they are informed as to whether they have any mail, and, if so, how much.

Trouble Shooting

Each computer system has a different way of sending and receiving data. This is called the communications protocol. Some of the following problems can occur if the protocols are different.

Gibberish—You phone the network and make the communication link but what you see on the screen doesn't make sense. Most likely you have the wrong data length and parity setting. (See "Accessing ERIC with Your Microcomputer" for more details). Try 7 data bits, 1 start/stop bit and even parity for starters. If that doesn't work, try the following combinations: 7,1,odd; 7,2,even; 7,2,odd; 8,2,none; 8,1,none; 8,1,even; or 8,1,odd.

Printer doesn't advance—one line keeps typing over another—Some older terminals don't automatically advance the paper one line after each carriage return (after each line has been written). For this reason, it is necessary to tell the terminal to do so by answering YES to LINE FEED? (Y/N).

Losing Characters—Some printers don't have enough time to get back to the left side of the page before they are ordered to print another line. As a result, you lose characters. When you first sign on to a bulletin board, many of them will ask you how many NULLS you want. NULLS are time wasters; they simply give the printer head enough time after each line to return to the left side of the page. Your printer manual should provide you with more information concerning this.

Resources

Now you have enough information to get started. There are all kinds of microcomputer messaging systems available to learn from and play with but many of them come and go. Here are two newsletters that provide networking news and list the available networks.

Other Networks
P.O. Box 14066
Philadelphia, PA 19123

$15.00/year
quarterly

Plumb
Riverside Data Inc.
P.O. Box 300
Harrods Creek, KY 40027
502-228-3820

$26.50/year
8 issues

Telephone Software Connection is a company that sells software via the modem. To acquaint you with the system, they provide several programs that can be downloaded at no charge. Have an initialized disk ready. Call (213) 516-9432. Novation, Inc., a producer of modems, provides a list of CBBSs on their network. Their number is (213) 881-6880. For more details and additional listings see *The Computer Phone Book* by Mike Cane (New York: New American Library, 1983).

Dial up and see what's out there.

This digest was prepared by Jane Klausmeier, Operations Manager, ERIC Clearinghouse on Information Resources, Syracuse University. November 1984.

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